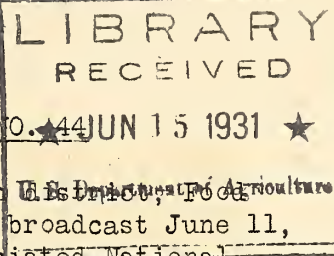


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A radio talk by W. W. Vincent, chief of the western ~~U.S. District, Food and Drug Administration~~, U. S. Department of Agriculture, broadcast June 11, 1931, at 12:45 p.m., through KGO, San Francisco, and associated National Broadcasting Company stations.

MR. LAMB: I have an old acquaintance of yours here today. W. W. Vincent, Chief, Western District, of the Department's Food and Drug Administration, has returned from Washington. All of you remember his "Read-the-Label" talks and hundreds of you wrote asking that they be continued. Mr. Vincent has promised to give us nine more, which will complete a year's series, or fifty-two in all. What have you for us today, Mr. Vincent?

MR. VINCENT: Well, to tell you the truth I hardly know what to talk about. I have pretty well covered the food field. What do you believe these folks would like to hear about?

MR. LAMB: Seems to me the subject of foods is broad enough for a few more topics. By the way, I have found a new lunch place. I want to take you down there today and get you some real biscuits and honey.

MR. VINCENT: What kind of biscuits are they?

MR. LAMB: Just ordinary biscuits, baking-powder biscuits. But they are surely mighty tasty.

MR. VINCENT: Quite different, I take it, from the kind you frequently find.

MR. LAMB: Oh, not so different, possibly a trifle more fluffy than some---the usual combination of flour, baking powder, salt, shortening, and milk, I suppose.

MR. VINCENT: Baking powder---what kind of baking powder do you use in your home?

MR. LAMB: Just ordinary baking powder. It's all the same, isn't it?

MR. VINCENT: Well, it all serves the same purpose---it causes the baked products to become light.

MR. LAMB: I wasn't aware that there was a difference in baking powder. I expect a lot of your listeners know just about as much about baking powder as I do. Perhaps you had better talk about baking powder today. Let's see, that falls under the classification of leavening agents, I believe.

MR. VINCENT: Yes, that's right. Perhaps I'd better tell you what a leavening agent is. It's the substance which makes products light. As applied to baked products the leavening agents include yeast, baking powder, and baking chemicals. The ultimate result accomplished by all is the same, that is, they produce carbon dioxide and this, as evolved within the dough, causes

expansion of the mass. As the heat of baking is applied the gas expands, producing a rather lighter or porous mass which tends to become rigid as the moisture evaporates and the proteins coagulate. The more gas produced, the fluffier and lighter the resultant baked product. Did you know, Mr. Lamb, that the ancient Egyptians used leavening agents?

MR. LAMB: No, I didn't. And I didn't know that the formation of carbon dioxide was responsible for making bread or biscuits lighter. I think you had better tell us something more about this subject.

MR. VINCENT: All right, let's start with the first leavening agents used. Yeast was undoubtedly the first. It was grown in a dough or batter rich in carbohydrates, that is, rich in starch and sugar. The yeast produces enzymes and these enzymes split the carbohydrates into carbon dioxide and alcohol. Certain bacteria will accomplish this same result, that is, produce carbon dioxide. The earliest salt-rising bread was probably produced in this fashion. A mixture of warm milk, salt, wheat meal or corn meal would be allowed to stand in a warm place. Certain bacteria would produce the carbon dioxide and when flour was mixed into this the dough would rise. Today the commercial salt-rising yeast in general use for the manufacture of salt-rising bread is but a culture of the bacteria which will produce the desired carbon dioxide gas. The term "Yeast Powder" applied to this material is a misnomer carried over from the past when yeast was almost exclusively used in baking. Leavening of bread or doughs has been artificially accomplished by injecting carbon dioxide gas under pressure into an ordinary wheat flour and water mixture.

This brings us to baking powder. Perhaps I'd better give you the Government's definition. Baking powder is the leavening agent produced by the mixing of an acid-reacting material and sodium bicarbonate, with or without starch or flour. It yields not less than 12% available carbon dioxide. The acid reacting materials in baking powder may be (1) tartaric acid or its acid salts, such as cream of tartar, known as potassium acid tartrate; (2) the acid salts of phosphoric acid; (3) compounds of aluminum; and (4) any combination of the products mentioned.

In most baking powders will be found a certain percentage of flour or starch. These are fillers used for the purpose of standardizing the strength of the powder. They serve a further useful purpose in that they help to keep the reacting chemicals apart and dry.

Some manufacturers of baking powder incorporate small quantities of egg albumen in their product. Such albumen has no appreciable leavening or nutritive value. Its use originated through the desire of manufacturers to have their product appear as containing larger amounts of gas than was actually present. The so-called cold-water test will determine the presence of albumen. Where egg albumen is present in the baking powder and the test is performed, the egg albumen tends to coat the gas bubbles and thus hold the gas evolved. Baking powder containing egg albumen or dried white of egg will have the presence of such declared upon the label. Just remember it contributes nothing of value to the particular powder. Also remember that in all baking powders to be found upon the market, the carbon dioxide is obtained from bicarbonate of soda which is the only carbonate that is permitted in baking powder. That is the baking soda you have in your pantries and which,

when added to sour milk, reacts in the same way as is the case where present in the baking powder. The lactic acid in sour milk reacts with the bicarbonate and releases the carbon dioxide.

The first commercial baking powder was produced about 1853. It was a cream of tartar product. A phosphate powder was developed about 1858, and the so-called alum powders were developed about 1878. These latter products did not come into general use until about 1892 when the manufacture of sodium-aluminum-sulphate became established. Before that, potassium and ammonium alums were the ones used. Today, practically all so-called alum baking powders are of the combination type; in addition to their sodium aluminum sulphate content there is also present calcium acid phosphate.

Now, for the "Read-the-Label" information. The government standard requires 12% of available carbon dioxide gas to be present in baking powders. Some labels bear declaration of the available gas present and therefore, as you know the minimum requirement is 12%, and should the labels specify 15 or 20%, you are able to evaluate which may be the better buy. Look for the net contents-statement, too. All baking powder containers bear a net weight statement. If you have a preference for phosphate powder, or cream of tartar powder, check the label. From that you may be able to determine if you are getting what you desire.

Remember, now, in a tartrate baking powder, the label will probably indicate the presence of either tartaric acid or potassium bitartrate or cream of tartar. If a phosphate powder is desired, see if either calcium or sodium acid phosphate or sodium phosphate is listed among the ingredients, or note if the single word, "phosphate," appears. In the case of so-called alum powder, the words, "sodium aluminum sulphate," or "sodic aluminic sulphate," or "soda alum," all mean the same thing.

You may have heard of the various residues that are left in baked products as a result of using certain baking powders. Every baking powder leaves a residue, but these residues are not considered harmful by food authorities, in the amounts usually found in the baked product. Therefore, where you see a statement, on a label or in other advertising material, such as "Entirely Free" from certain named residues such as Rochelle Salts, phosphates, or alum, you can be assured that the statement---while true---doesn't necessarily indicate a product superior to other good ones. Likewise, the statements, "Absolutely Pure," "Absolute Purity Guaranteed," "Highest Quality," are usually plain advertising.

I should mention a baking chemical used by large manufacturers of certain types of cookies. It is ammonium carbonate or bicarbonate, not in use as a component of baking powders. When it is incorporated into the dough and heat is applied, the material decomposes into two gases, ammonia and carbon dioxide, both of which serve as leavening agents. This material leaves no residue, but if a slight excess of ammonia is present and remains in the baked product, it gives the material a disagreeable taste and odor. This product, therefore, enjoys a rather restricted use.

Folks, this concludes my talk on leavening agents. If you would like this information in printed form, drop a postcard to W. W. Vincent, care of the station to which you are listening, or to the U. S. Food and Drug Laboratory, San Francisco. You know my mission is to make you a discriminating buyer.

MR. LAMB: Thank you, Mr. Vincent. Folks, Mr. Vincent has just concluded the 44th talk of his "Read-the-Label" series on foods and drugs. The Department has mimeographed all his "Read-the-Label" information on the many food products of which he has told you. That material is available to you free. Vitamins, health foods, fish, shell fish, dried and canned fruits, food poisoning--- he has talked on all those subjects. A postcard brings you the information free. Next week Mr. Vincent will tell of mineral waters. I believe you will find that interesting.

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